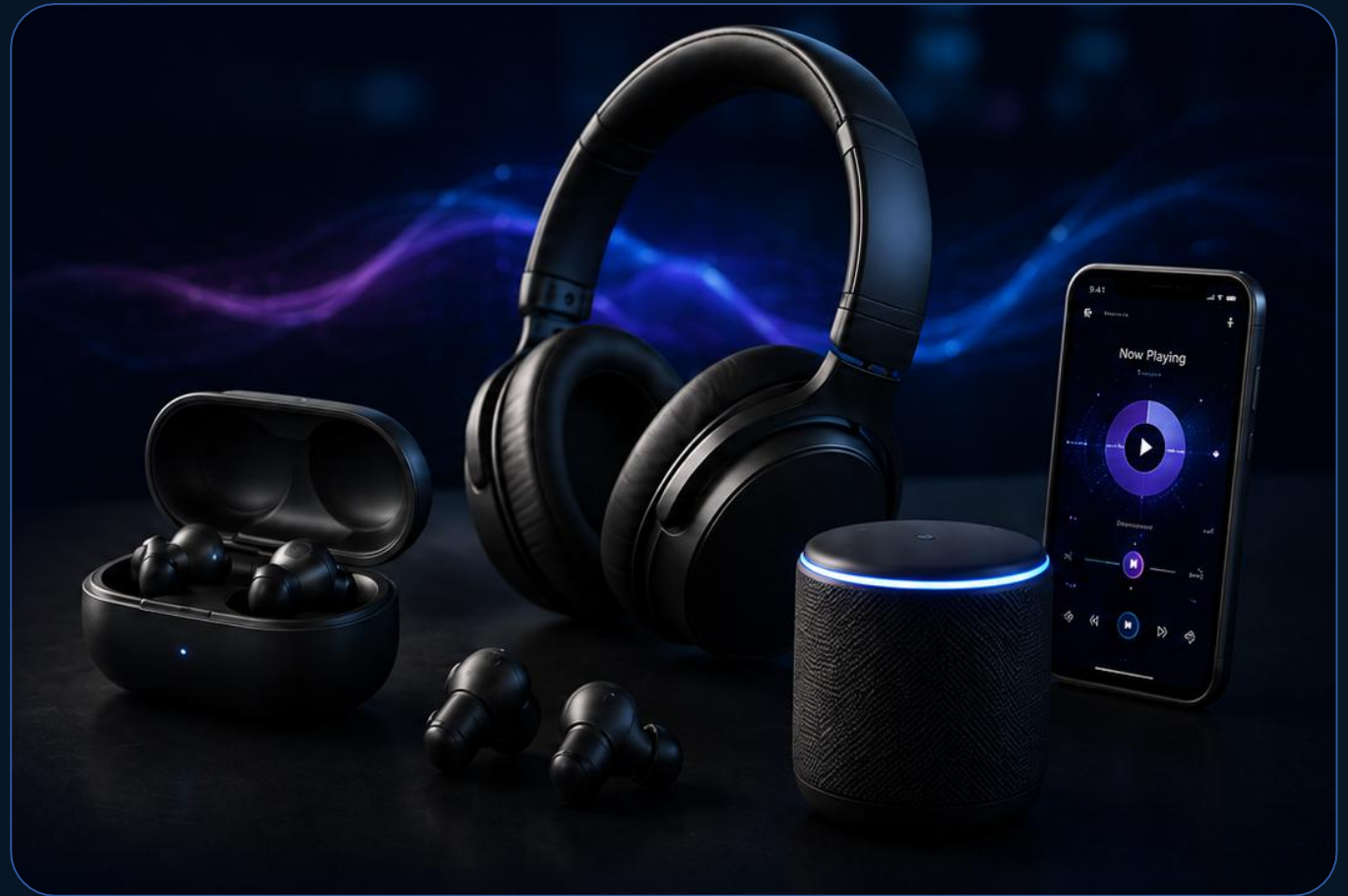


Validate connected audio experiences with greater confidence

Automated testing, synchronised evidence and engineering insight for connected audio products.



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Connected audio issues often happen between features

The risk is not only sound quality. It is how products behave across real customer journeys.

- 1 Bluetooth, Wi-Fi, mobile apps, cloud services, firmware and multiple devices now shape the experience.
- 2 Failures often emerge during transitions, repeated cycles or changing wireless conditions.
- 3 Intermittent issues are hard to reproduce without evidence from multiple systems.
- 4 Feature-by-feature testing can miss the complete listening journey.



Nextgen focuses on the moments where connected audio products are most likely to fail transitions, coexistence, recovery and repeatability.

Three connected-audio experience layers

Coverage can be configured around product type, ecosystem, release stage and failure profile.



 **Connection reliability**

- Pairing and reconnection
- Multipoint and device switching
- Bluetooth / Wi-Fi coexistence
- LE Audio and Auracast journeys
- Companion-app and firmware interaction



 **Listening quality**

- Playback continuity
- Dropouts and interruptions
- Call-to-media transitions
- Latency and synchronisation
- State recovery after disruption



 **Software updates**

- Firmware and OTA regression
- Long-duration stability
- Repeated customer journeys
- Cross-device and platform testing
- Regional / product variant coverage

The emphasis is on repeatable automated journeys, not isolated lab checks.

Discover → Capture → Resolve

A practical framework for finding issues, preserving evidence and accelerating engineering investigation.



1

Discover

Automated stress testing

- Pairing
- Streaming
- Device switching
- Firmware updates
- Video calls
- Long-duration testing
- Stress testing



2

Capture

Synchronised evidence

- Bluetooth logs
- Audio logs
- RF traces
- Video
- Metadata
- Deep logging



3

Resolve

Engineering insight

- Root cause analysis
- Engineering insight
- Faster debugging
- Regression prevention
- Release confidence

Journey → Failure → Evidence → Investigation

Modelling user experience and validating performance

Nextgen ATAMConnect platform can be configured to test the complete connected-audio journey.



- Physical interaction with devices using cobot
- Mobile device and companion app control
- Bluetooth and Wi-Fi coexistence and test orchestration
- Audio capture and audio stream verification, sync and latency
- Configurable automated end-to-end test journeys
- Bluetooth, Wi-Fi traces, video, audio, device and system logs
- Repeatable regression testing across firmware releases

Outcomes: Discovering the key failures with deep logging to enable root cause analysis.

What we test for QA and development teams

Focused on the connected-audio journeys most likely to fail, hardest to reproduce, diagnose and regress.



Connectivity and recovery

- Pairing, reconnection and link-loss recovery
- Multipoint, device switching and saved-state behaviour

Reproduce intermittent connection failures faster



Streaming endurance

- 2–8-hour playback runs & repeated control activity
- Glitches, dropouts, interruptions and cumulative playback defects

Unattended stability testing at scale



RF coexistence and range

- Bluetooth / Wi-Fi traffic, attenuation and range variation
- Recovery after degraded wireless conditions

Controlled RF conditions with recovery metrics



Physical interaction automation

- Buttons, touch, charging-case and in-ear events
- Repeatable handling with actuators, fixtures or cobots

Replace slow, inconsistent manual interactions



Audio quality, latency and sync

- SNR, THD, latency, lip-sync and channel alignment
- Reference tones, music playback and baseline comparison

Catch regressions beyond simple pass/fail checks



Firmware OTA regression

- Pre/post-update validation of connectivity and playback
- Recovery, controls and behavioural comparison across builds

De-risk releases before software reaches customers

Repeatable user journeys, controlled stress conditions and engineering-ready evidence.

Representative connected-audio test cases

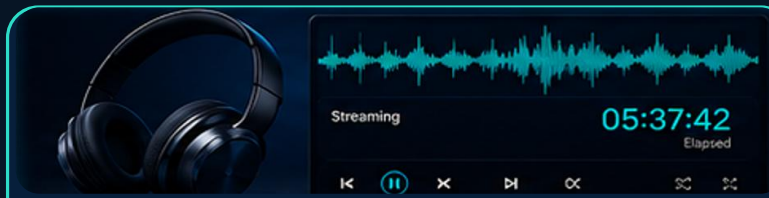
Technical examples of automated journeys, measurements and recovery checks for audio QA.



Earbud pairing, reconnection and state transitions

Challenge: Reliable reconnect after case transitions, reboot or temporary link loss.

Test: Repeat in/out-of-case cycles, vary RF conditions, reboot source and verify reconnect plus playback recovery.



Long-duration streaming and audio-gap detection

Challenge: Dropouts and cumulative failures often appear only after hours of playback.

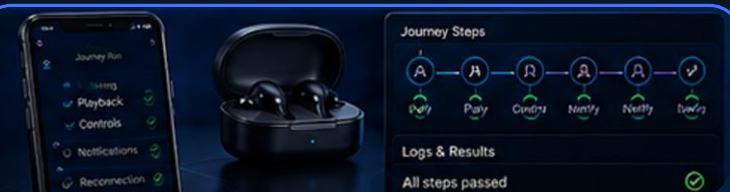
Test: Run unattended 2-8 hour streams with repeated controls and automatic silence / glitch detection.



Bluetooth / Wi-Fi coexistence

Challenge: Audio must remain stable under competing wireless traffic and changing signal strength.

Test: Generate controlled RF traffic, apply attenuation / range variation and verify glitch recovery.



End-to-end connected-audio user journeys

Challenge: Teams need to validate full user flows, not isolated functions.

Test: Combine pairing, playback, controls, notifications, case transitions and reconnection in one repeatable journey.



Audio quality and EQ regression

Challenge: Software changes must not degrade response, SNR, distortion or EQ behaviour.

Test: Companion app automation, use calibrated reference audio to compare SNR, THD and EQ against baselines.



Playback control, button and LED regression

Challenge: Repeated physical actions can create stuck states or missed commands.

Test: Use cobot or actuators for repeat presses, media states, case or ear positions, LED states and cumulate failure logging

Detailed test coverage can be configured around product type, ecosystem, release stage and failure profile.

Representative connected-audio test cases

Technical examples of automated journeys, measurements and recovery checks for audio QA.



OTA firmware-update and post-update validation

Challenge: Updates must complete cleanly and preserve pairing, controls, connectivity and audio behaviour.

Test: Trigger and OTA update, reconnect device then run targeted pre- /post-update regression.



In-ear detection and case / fit state validation

Challenge: Insert, remove and case states must be detected accurately.

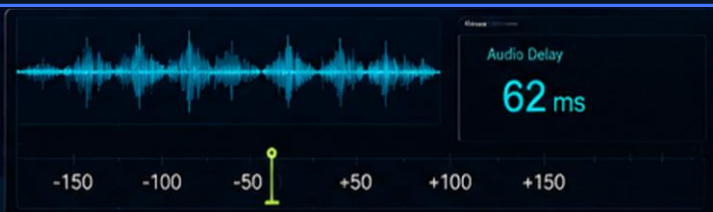
Test: Use controlled placement cycles with ear simulators to verify sensor state and media responses



Auracast, scalability, multi-device variants

Challenge: Platforms must support many devices, variants and broadcast audio scenarios without losing sync

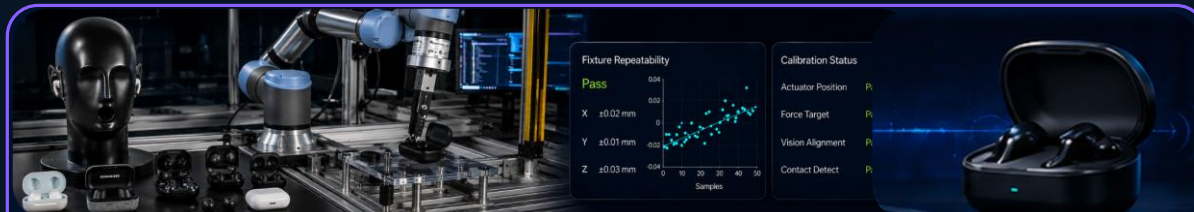
Test: Coordinate multiple sources and receivers, validate join / leave / playback behaviour and centralise logs.



Audio synchronisation and latency validation

Challenge: Audio may be present but misaligned across channels, devices or video

Test: Play synchronised AV references, compare against a common timeline and calculate delay and latency across state changes.



Physical-interactions automation and fixture repeatability

Challenge: Manuals handling is inconsistent and automated fixtures can drift during long test campaigns

Test: Use cobot for case handling and button presses, plus position checks, calibration routines and drift verification

These test cases can be combined into repeatable release, regression and investigation workflows.

Automated testing services working in partnership with your engineering teams

Designed to be an extension of your validation, QA and product development teams



Connect the teams behind the listening experience

Connected audio failures can span products, platforms and technologies, making ownership and resolution challenging.

- ✓ Align stakeholders around shared evidence
- ✓ Reproduce complex interoperability issues faster
- ✓ Resolve risks before they reach customers



Objective evidence across the connected-audio ecosystem

Nextgen independently validates the complete connected audio experience, providing synchronised evidence and engineering insight across products, devices and platforms.

- ✓ Independent, detailed reporting
- ✓ Evidence-led issue investigation
- ✓ Trusted connected-audio expertise



Built for complex connected-audio testing at scale

Automated testing of real-world audio journeys across devices, platforms and wireless environments—so you can test more, sooner and with greater confidence.

- ✓ Automate complex audio and connectivity journeys
- ✓ Scale testing across devices, OS and environments
- ✓ Capture the evidence you need to investigate and learn



Nextgen complements internal engineering teams by providing **specialist automation, scalable validation and synchronised evidence** for the testing challenges that are hardest to solve.

NEXT STEP

Ready to find the connected-audio issues your current testing may be missing?

Nextgen can help you evaluate your current validation approach and identify where automated testing, synchronised evidence and deeper investigation could strengthen your connected-audio QA process

- ✓ Discuss current testing challenges
- ✓ Identify opportunities for repeatable automation
- ✓ Explore a no-obligation test or validation proposal

BOOK A DISCOVERY SESSION →

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